PCT/GB2000/003603

FIG. 1

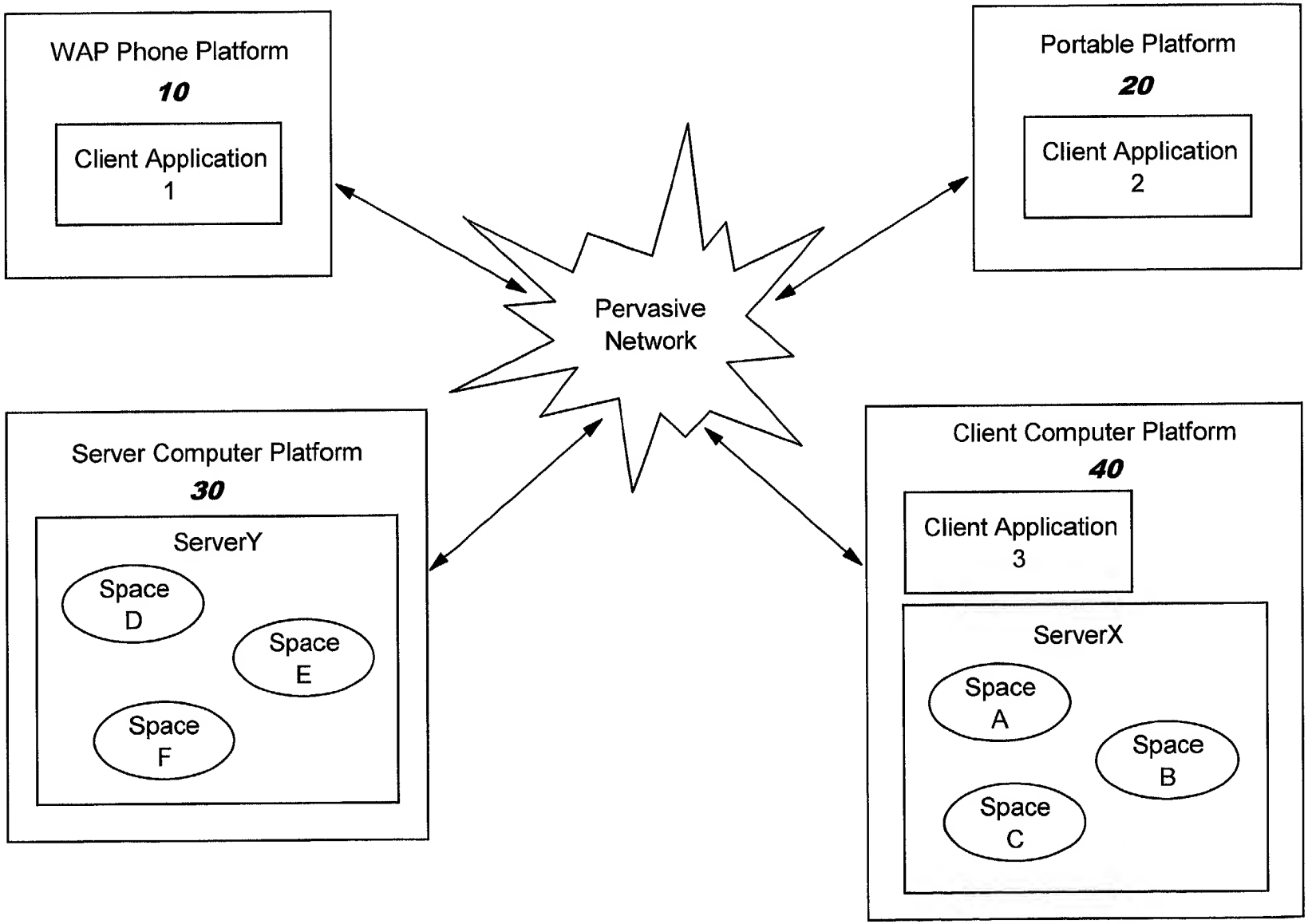

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FIG. 2

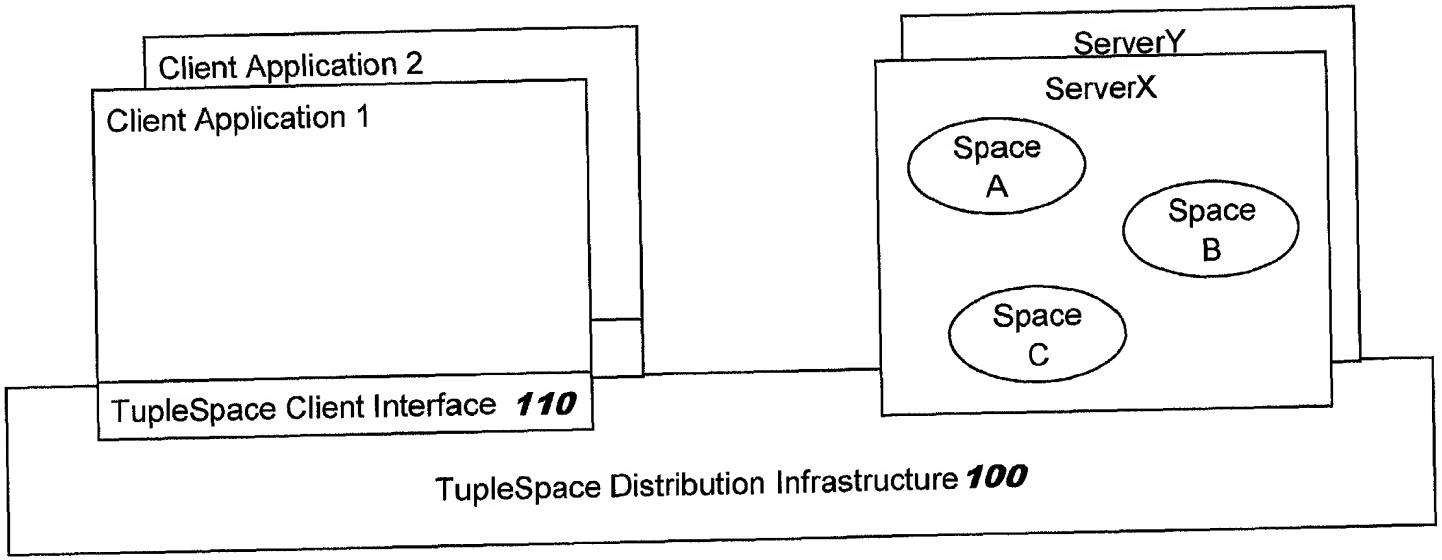
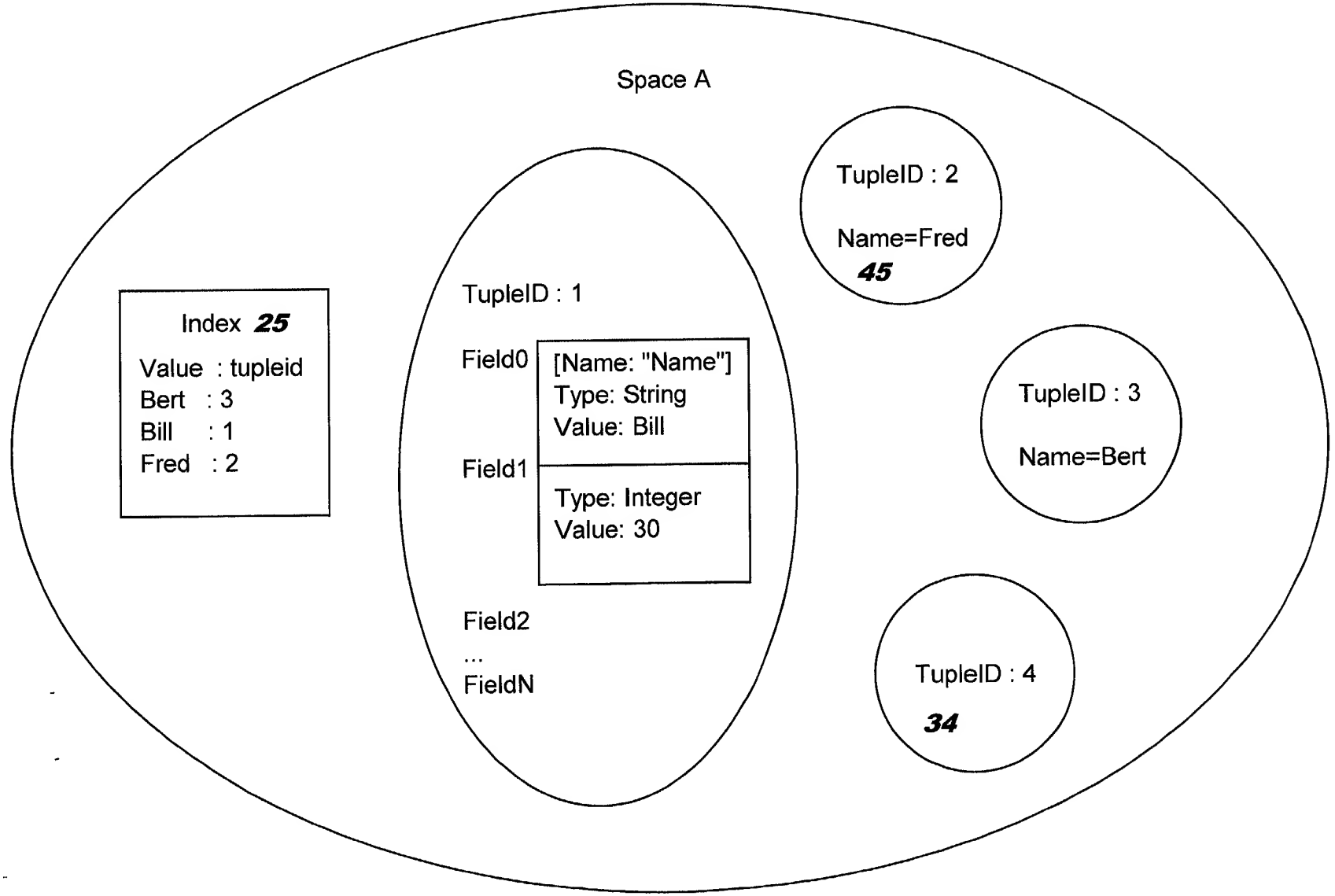


FIG. 3


Space A
Index 25
Value : tupleid
Bert : 3
Bill : 1
Fred : 2
TupleID : 1
Field0
[Name: "Name"]
Type: String
Value: Bill
Field1
Type: Integer
Value: 30
Field2
...
FieldN
TupleID : 2
Name=Fred
45
TupleID : 3
Name=Bert
TupleID : 4
34

FOREIGN PATENT DOCUMENT

FIG. 4

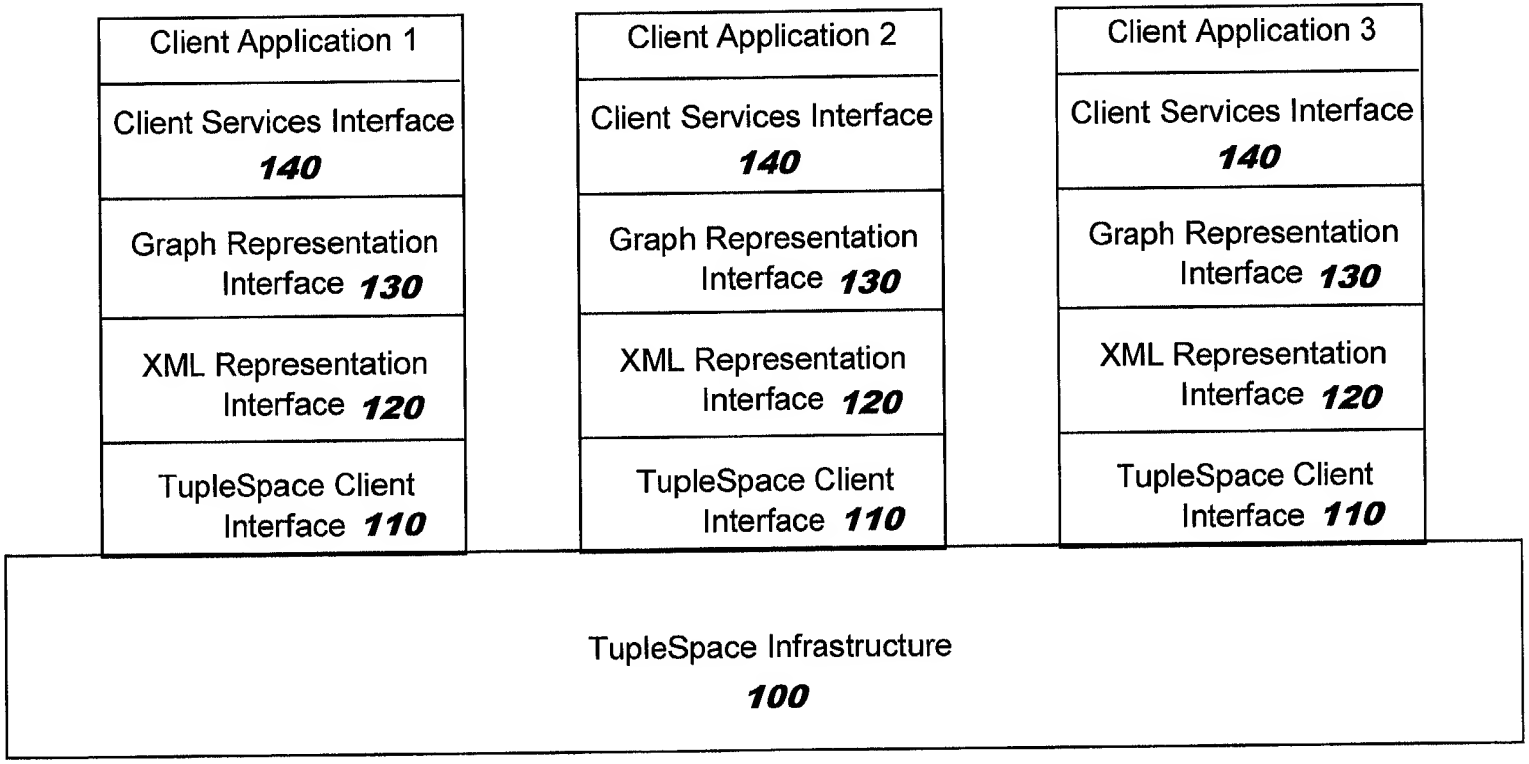


FIG. 5A

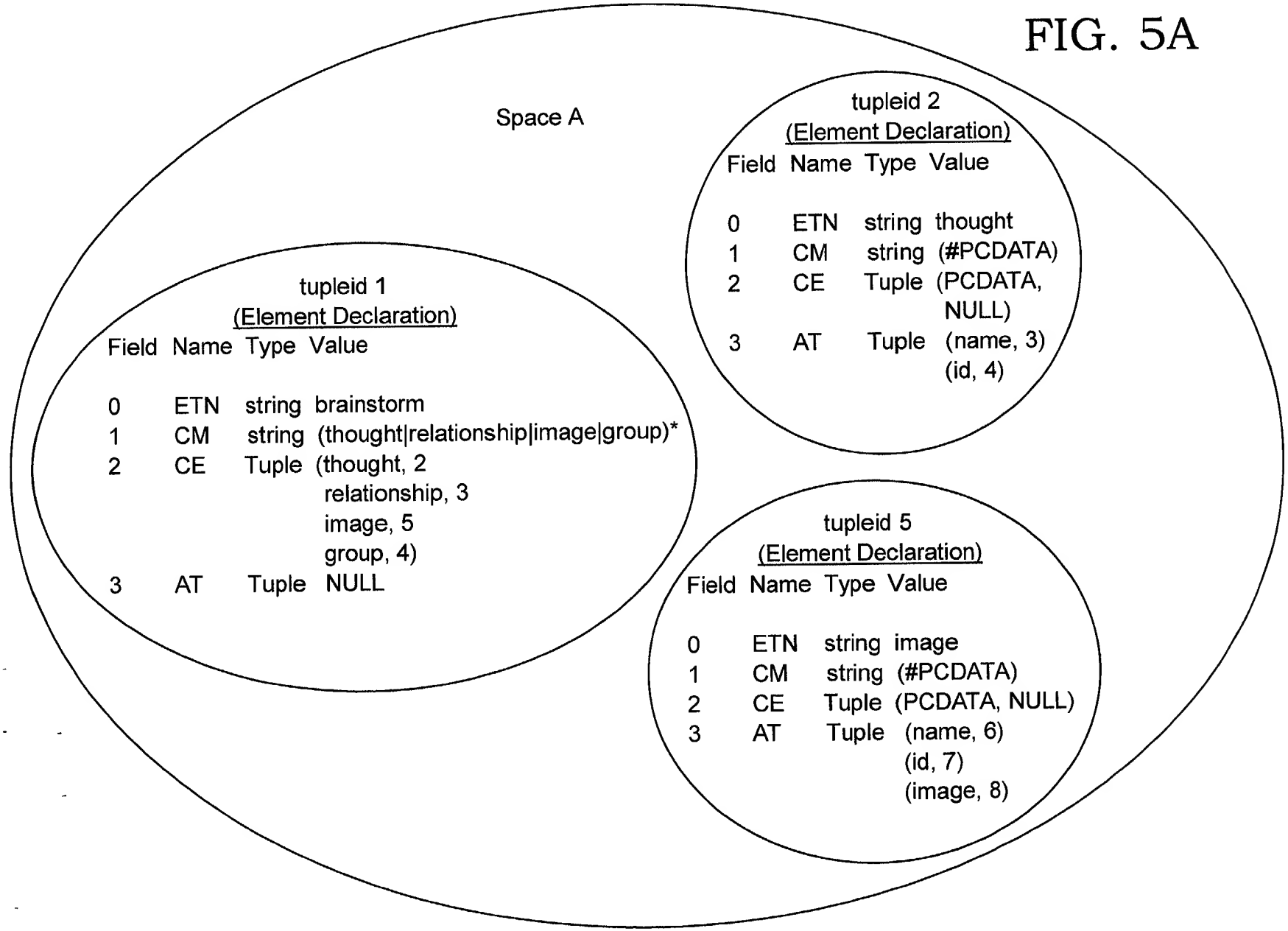

Space A
tupleid 1
(Element Declaration)
Field Name Type Value
0 ETN string brainstorm
1 CM string (thought|relationship|image|group)*
2 CE Tuple (thought, 2
relationship, 3
image, 5
group, 4)
3 AT Tuple NULL
tupleid 2
(Element Declaration)
Field Name Type Value
0 ETN string thought
1 CM string (#PCDATA)
2 CE Tuple (PCDATA,
NULL)
3 AT Tuple (name, 3)
(id, 4)
tupleid 5
(Element Declaration)
Field Name Type Value
0 ETN string image
1 CM string (#PCDATA)
2 CE Tuple (PCDATA, NULL)
3 AT Tuple (name, 6)
(id, 7)
(image, 8)

FIG. 5B

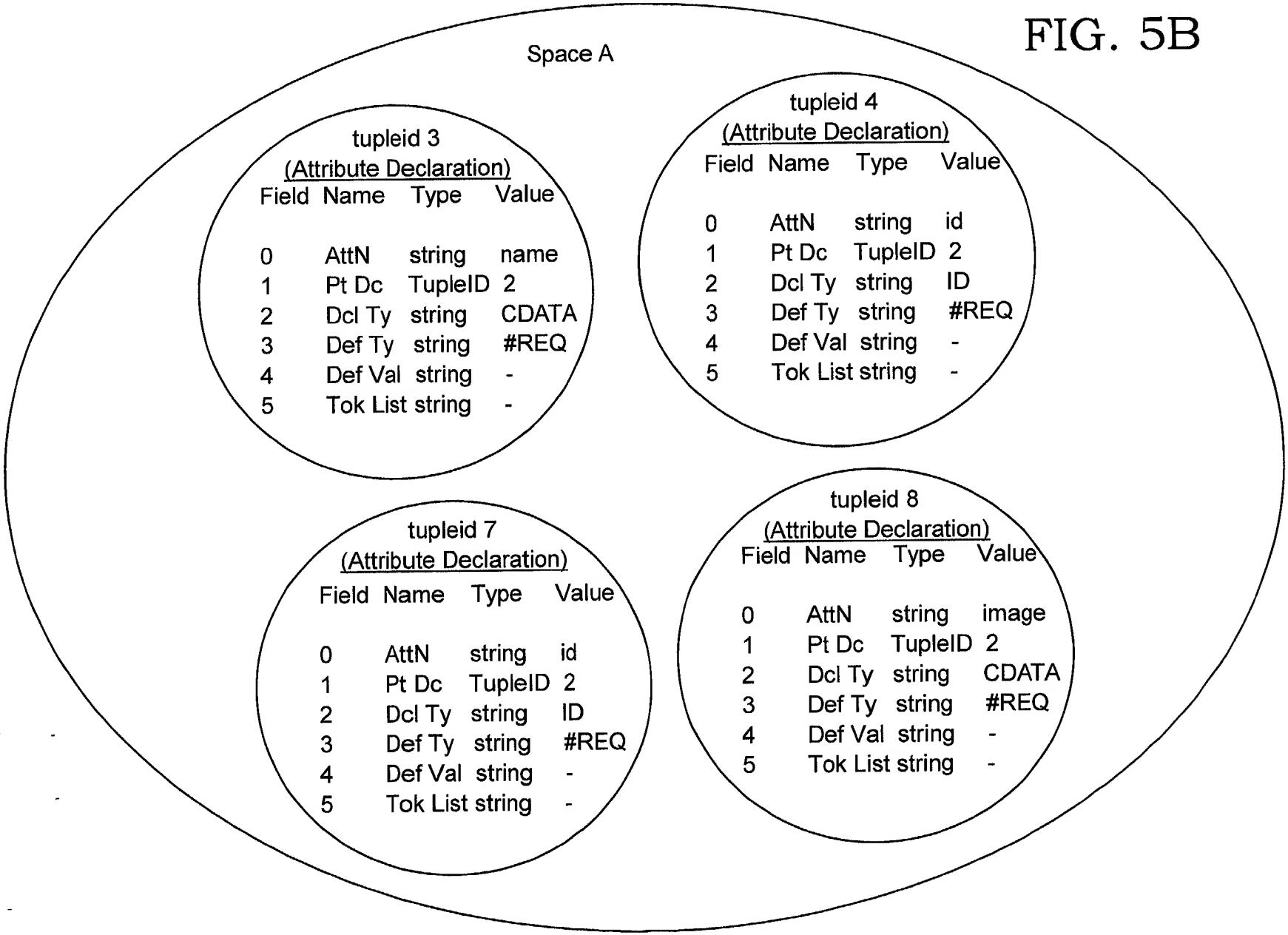

Space A
tupleid 3
(Attribute Declaration)
Field Name Type Value
0 AttN string name
1 Pt Dc TupleID 2
2 Dcl Ty string CDATA
3 Def Ty string #REQ
4 Def Val string -
5 Tok List string -
tupleid 4
(Attribute Declaration)
Field Name Type Value
0 AttN string id
1 Pt Dc TupleID 2
2 Dcl Ty string ID
3 Def Ty string #REQ
4 Def Val string -
5 Tok List string -
tupleid 7
(Attribute Declaration)
Field Name Type Value
0 AttN string id
1 Pt Dc TupleID 2
2 Dcl Ty string ID
3 Def Ty string #REQ
4 Def Val string -
5 Tok List string -
tupleid 8
(Attribute Declaration)
Field Name Type Value
0 AttN string image
1 Pt Dc TupleID 2
2 Dcl Ty string CDATA
3 Def Ty string #REQ
4 Def Val string -
5 Tok List string -

FIG. 5C

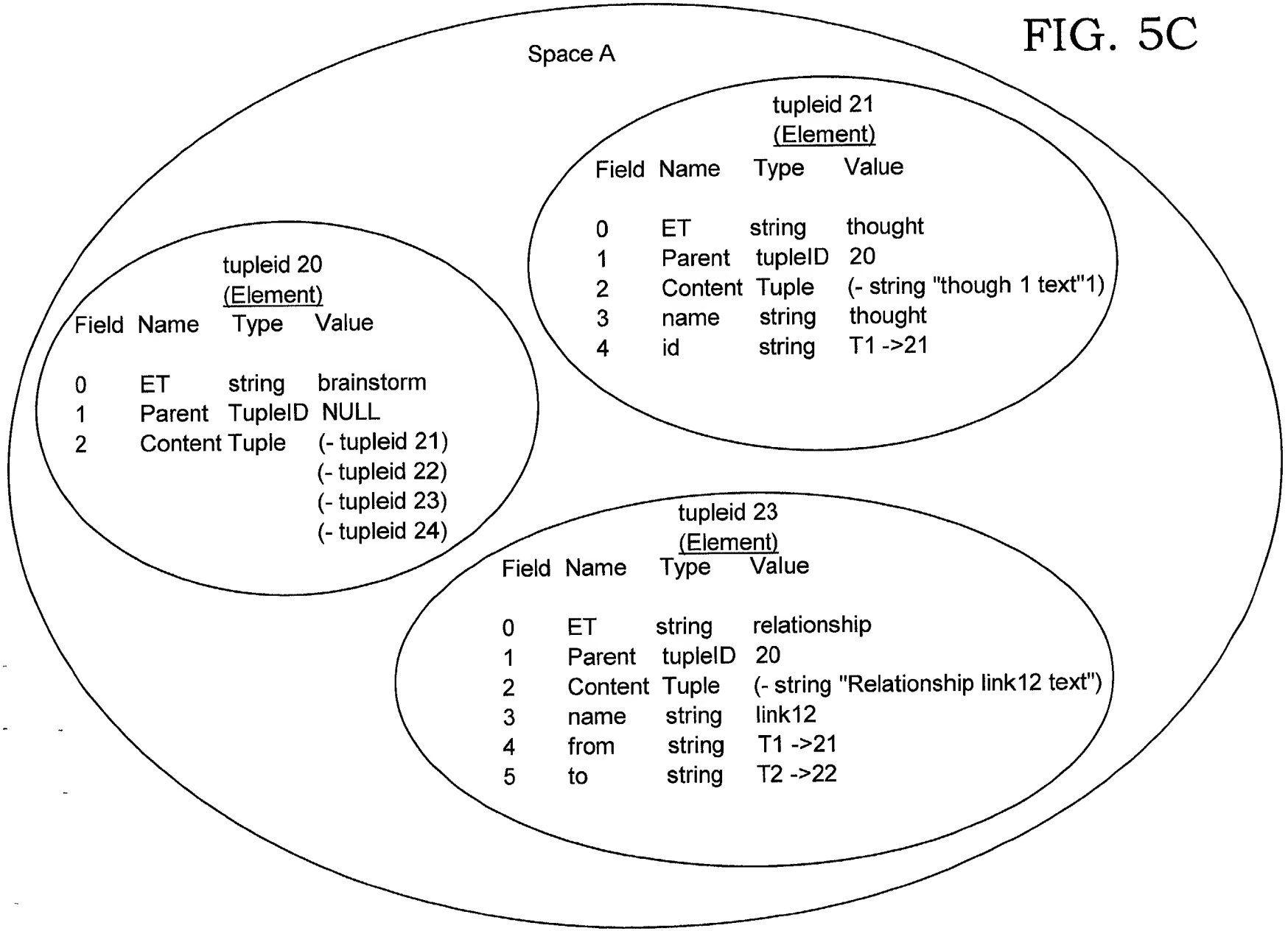

Space A
tupleid 20
(Element)
Field Name Type Value
0 ET string brainstorm
1 Parent TupleID NULL
2 Content Tuple (- tupleid 21)
(- tupleid 22)
(- tupleid 23)
(- tupleid 24)
tupleid 21
(Element)
Field Name Type Value
0 ET string thought
1 Parent tupleID 20
2 Content Tuple (- string "though 1 text"1)
3 name string thought
4 id string T1 ->21
tupleid 23
(Element)
Field Name Type Value
0 ET string relationship
1 Parent tupleID 20
2 Content Tuple (- string "Relationship link12 text")
3 name string link12
4 from string T1 ->21
5 to string T2 ->22

FIG. 6

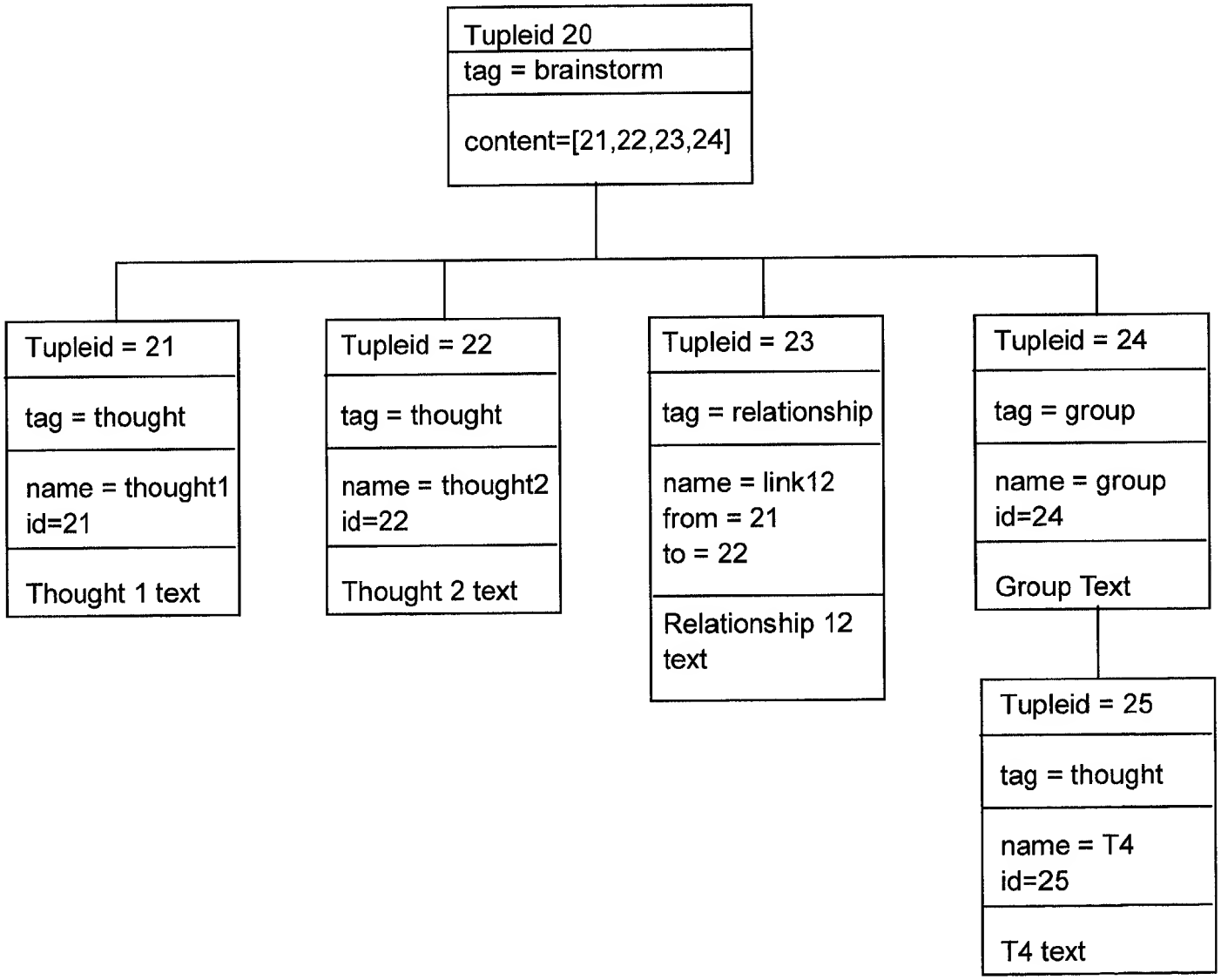

Tupleid 20
tag = brainstorm
content=[21,22,23,24]
Tupleid = 21
tag = thought
name = thought1
id=21
Thought 1 text
Tupleid = 22
tag = thought
name = thought2
id=22
Thought 2 text
Tupleid = 23
tag = relationship
name = link12
from = 21
to = 22
Relationship 12 text
Tupleid = 24
tag = group
name = group
id=24
Group Text
Tupleid = 25
tag = thought
name = T4
id=25
T4 text

FIG. 7

ID	Elements

Elements
200

No:	tag	Event type
1	thought	U
2	thought	W
3	thought	D
4	. . .	

Event Register
210

ID	Elements Dcl

Elements Declarations
220

Tag	Subscription	
thought		

Subscriptions
230

Document received

FIG. 8

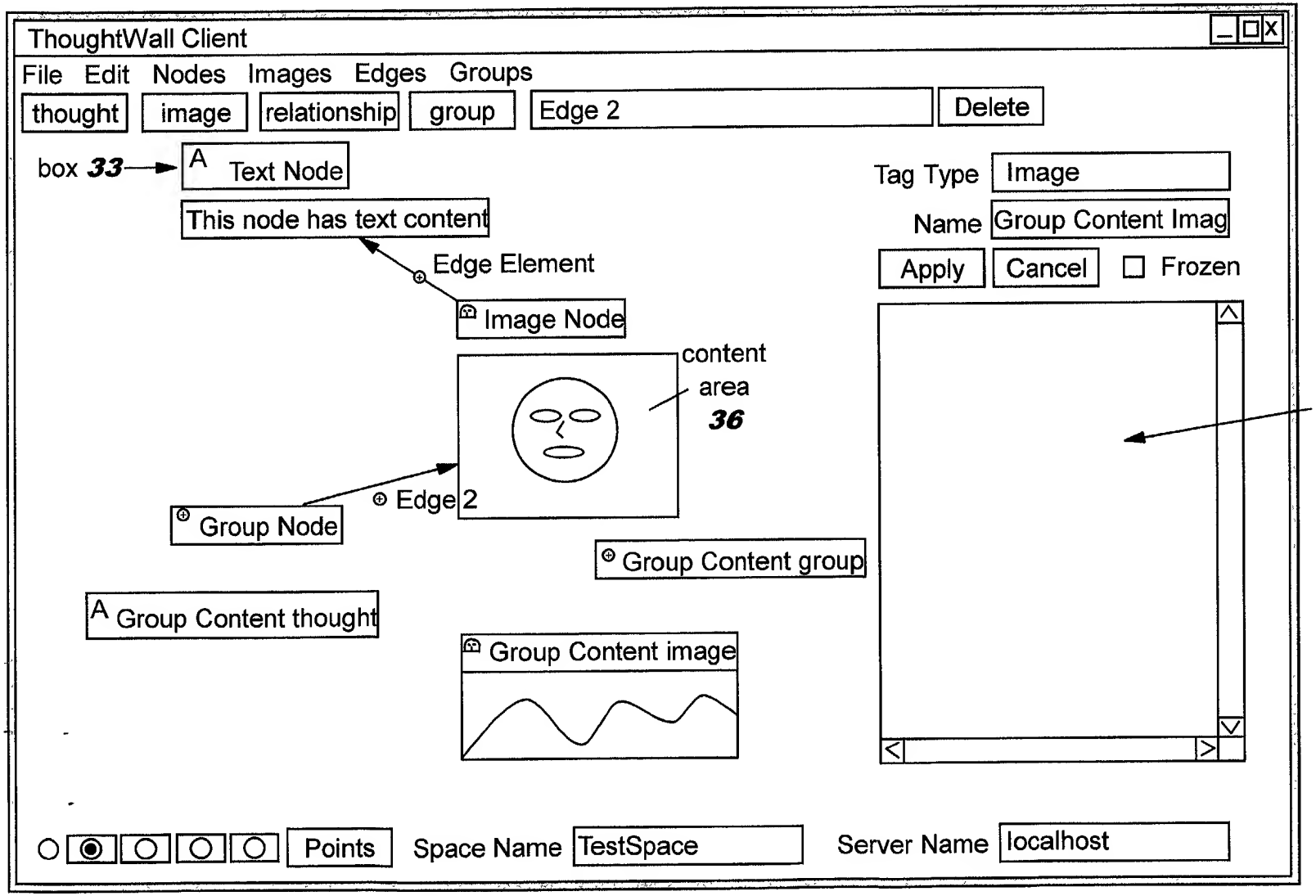


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FIG. 9

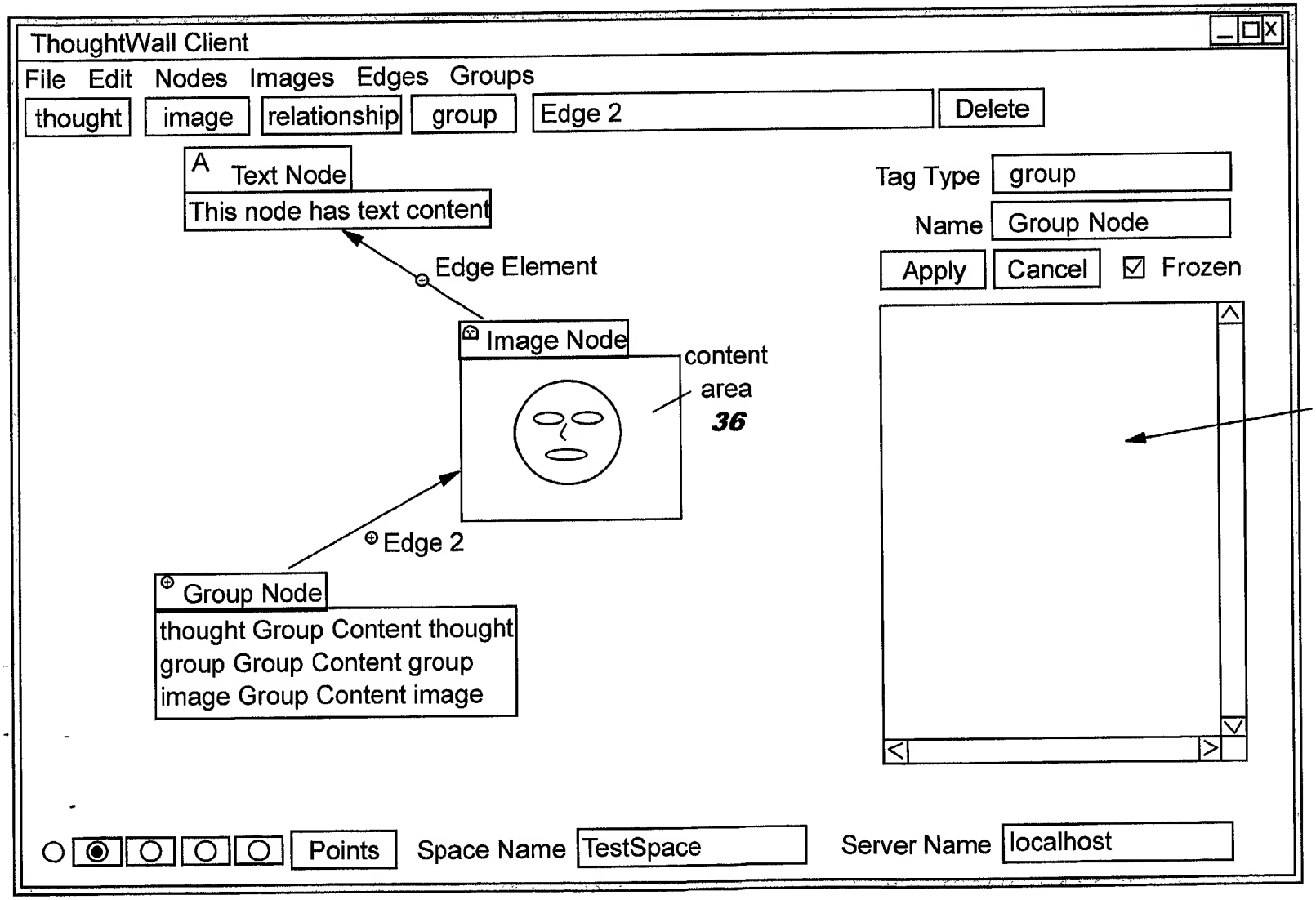

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FIG. 10

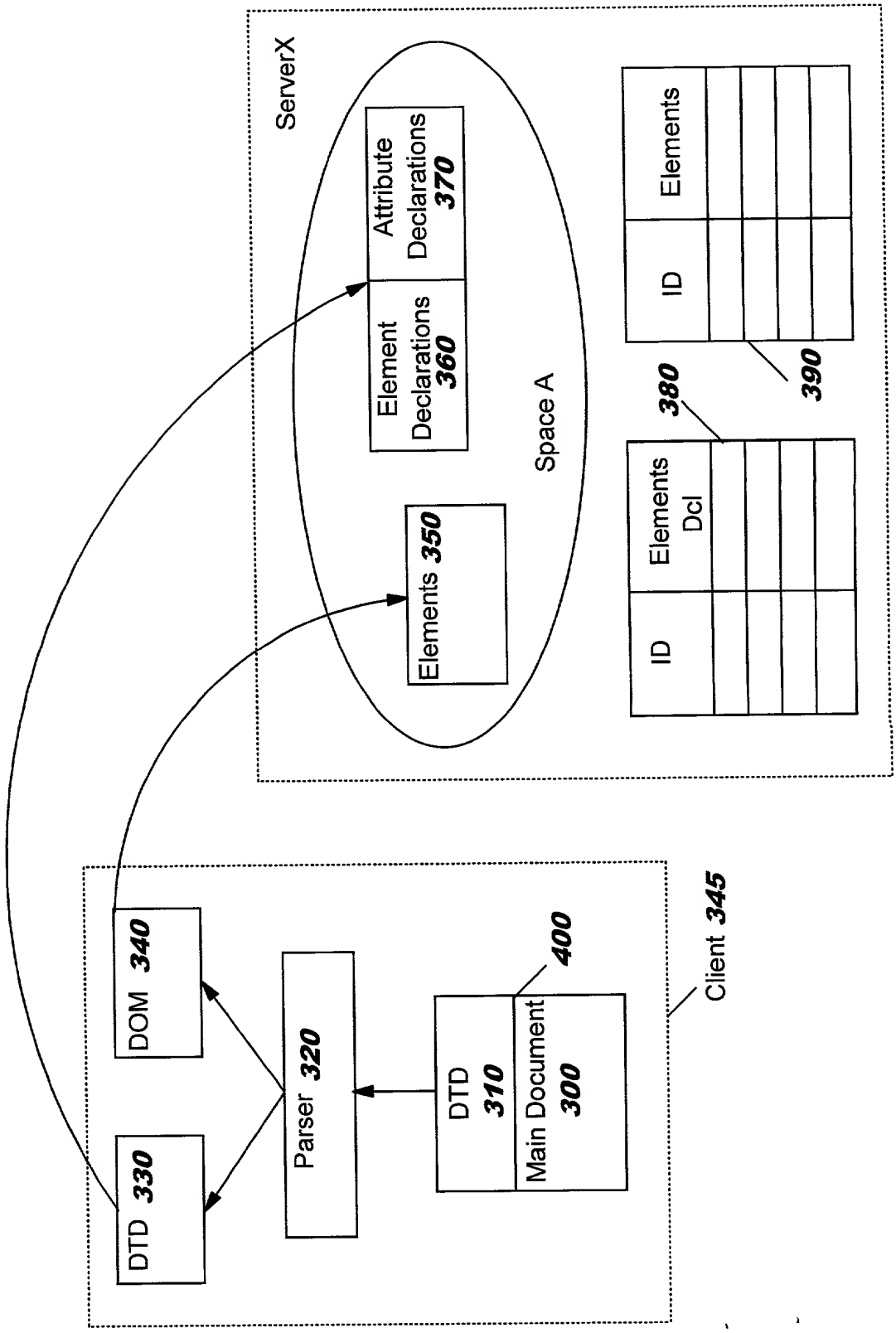
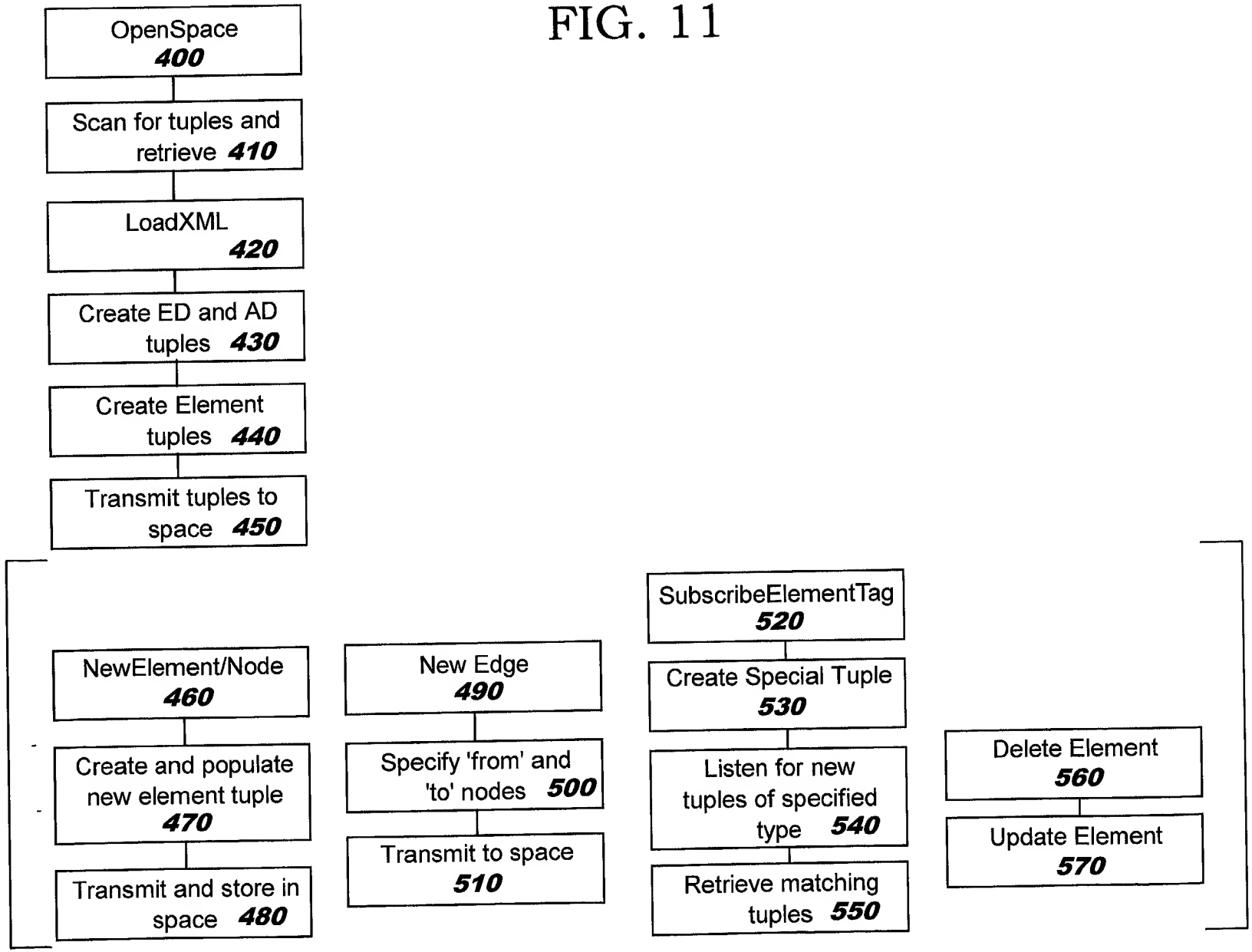

ServerX
Space A
Attribute Declarations 370
Element Declarations 360
Elements 350
ID
Elements
390
380
ID
Elements Dcl
DOM 340
DTD 330
Parser 320
DTD 310
Main Document 300
400
Client 345

FIG. 11


OpenSpace 400
Scan for tuples and retrieve 410
LoadXML 420
Create ED and AD tuples 430
Create Element tuples 440
Transmit tuples to space 450
NewElement/Node 460
Create and populate new element tuple 470
Transmit and store in space 480
New Edge 490
Specify 'from' and 'to' nodes 500
Transmit to space 510
SubscribeElementTag 520
Create Special Tuple 530
Listen for new tuples of specified type 540
Retrieve matching tuples 550
Delete Element 560
Update Element 570